



PLANITOP 12 SR
Sulfate-Resistance, Vertical, Overhead and Horizontal Repair Mortar with Silica Fume

SECTION 03 01 30
MAINTENANCE OF CAST-IN-PLACE CONCRETE

PART 1 GENERAL

1.1 SECTION INCLUDES

- A. Products for maintenance of concrete, including the following:
 - 1. Vertical and overhead concrete repair.
 - 2. Silica-fume-enhanced concrete repair.
 - 3. Corrosion-inhibiting.

1.2 RELATED SECTIONS

- A. Section 03 30 00 - Cast-in-Place Concrete.

1.3 REFERENCES

- A. ASTM International:
 - 1. ASTM C109 - Standard Test Method for Compressive Strength of Hydraulic Cement Mortars (Using 2-in. or [50-mm] Cube Specimens).

1.4 SUBMITTALS

- A. Submit under provisions of Section 01 30 00 - Administrative Requirements.
- B. Product Data: Manufacturer's data sheets on each product to be used, including:
 - 1. Preparation instructions and recommendations.
 - 2. Storage and handling requirements and recommendations.
 - 3. Installation methods.
- C. Verification Samples: For each finish product specified, two samples, minimum size 6" (150 mm) square representing actual product, color and patterns.

1.5 QUALITY ASSURANCE

- A. Manufacturer Qualifications: Minimum 5 years' experience manufacturing similar products.
- B. Installer Qualifications: Minimum 2 years' experience installing similar products.
- C. Source Limitations: For repair products, obtain each color, grade, finish, type and variety of product from single source and from single manufacturer with resources to provide products of consistent quality in appearance and physical properties.
- D. Mock-Up: Provide a mock-up for evaluation of surface preparation techniques and application workmanship.
 - 1. Finish areas designated by Architect.
 - 2. Do not proceed with remaining work until workmanship is approved by Architect.
 - 3. Refinish mock-up area as required to produce acceptable work.



1.6 PRE-INSTALLATION MEETINGS

- A. Convene at least two weeks prior to starting work of this section.

1.7 DELIVERY, STORAGE AND HANDLING

- A. Deliver and store products in manufacturer's unopened packaging bearing the brand name and manufacturer's identification until ready for installation.
- B. Handling: Handle materials to avoid damage.

1.8 PROJECT CONDITIONS

- A. Maintain environmental conditions (temperature, humidity and ventilation) within limits recommended by manufacturer for optimum results. Do not install products under environmental conditions outside manufacturer's recommended limits.

1.9 SEQUENCING

- A. Ensure that products of this section are supplied to affected trades in time to prevent interruption of construction progress.

PART 2 PRODUCTS

2.1 MANUFACTURERS

- A. Product Performance:

Compressive strength – ASTM C109 (CAN/CSA-A5)

1 day	> 2,900 psi (20 MPa)
7 days	> 7,975 psi (55 MPa)
28 days	> 10,450 psi (72.1 MPa)

Flexural strength – ASTM C348 (CAN/CSA-A23.2-8C)

1 day	> 600 psi (4.14 MPa)
7 days	> 970 psi (6.69 MPa)
28 days	> 1,190 psi (8.21 MPa)

Slant/shear bond strength – ASTM C882 (modified)

1 day	> 1,160 psi (8 MPa)
7 days	> 2,465 psi (17 MPa)
28 days	> 3,480 psi (24 MPa)

Modulus of elasticity – ASTM C469

28 days	4.75 x 10 ⁶ psi (32.8 GPa)
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Volume change – ASTM C157 (modified)

28 days, dry-cured	- 0.08%
28 days, wet-cured	+ 0.06%

Splitting tensile strength – ASTM C496

28 days, with 4" x 8" (10 x 20 cm) cylinders	1,000 psi (6.90 MPa)
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Freeze/thaw resistance – ASTM C666-A (CAN-CSA A23.2-9B)
300 cycles 97% durability factor

Resistance to de-icing salts – ASTM C672 (CAN-CSA A23.2-22C)
0; no scaling (50 cycles)

Permeability to chlorides – ASTM C1202 (AASHTO T1277)
110 to 1,000 coulombs (very low)

Sulfate resistance – ASTM C1012 (% of expansion at 6 months)
≤ 0.05% expansion

B. Acceptable Manufacturer:

MAPEI North America
1144 E. Newport Center Dr.; Deerfield Beach, FL 33442
Toll-Free for CRS Technical Services: Tel. 1-888-365-0614
Email: CRS@mapei.com
Web: www.mapei.com

C. Requests for substitutions will be considered in accordance with provisions of Section 01 60 00 - Product Requirements.

D. Substitutions: Not permitted.

2.2 FORM-AND-POUR/PUMP CONCRETE REPAIR PRODUCTS

A. Sulfate-Resistant, Fiber-Reinforced, Shrinkage-Compensated, Cementitious Vertical and Overhead Repair Mortar: Packaged, dry mix for repair of concrete.

1. Product: Subject to compliance with requirements, provide MAPEI Corporation; Planitop 12 SR.
2. Compressive strength: Not less than 10,450 psi (72.1 MPa) within 28 days when tested according to ASTM C109.

2.3 MISCELLANEOUS MATERIALS

A. Portland Cement: ASTM C150/C150M, Type I, II or III unless otherwise indicated.

B. Water: Potable.

2.4 MIXES

A. General: Mix products in clean containers according to manufacturer's written instructions.

1. Do not add water, thinners or additives unless recommended by manufacturer.
2. When practical, use manufacturer's premeasured packages to ensure that materials are mixed in proper proportions. When premeasured packages are not used, measure ingredients using graduated measuring containers; do not estimate quantities or use shovels or trowels as units of measure.
3. Do not mix more materials than can be used within time limits recommended by manufacturer. Discard materials that have begun to set.

B. Mortar Scrub Coat: Mix dry ingredients with enough water to provide consistency of thick cream.

C. Dry-Pack Mortar: Mix required type(s) of patching-mortar dry ingredients with just enough



liquid to form damp cohesive mixture that can be squeezed by hand into a ball but is not plastic.

- D. Concrete: Comply with Section 03 30 00 - Cast-in-Place Concrete.

PART 3 EXECUTION

3.1 EXAMINATION

- A. Properly prepared concrete at least 28 days old, stable, sound and dry.
- B. If substrate preparation is the responsibility of another installer, notify Architect of unsatisfactory preparation before proceeding.

3.2 PREPARATION

- A. Concrete surface must be and free of loose particles, efflorescence, paints, tars, grease, asphaltic materials, bond breakers, curing compounds, wax, and any foreign substance or any conditions that may affect product performance or proper bonding.
- B. Mechanically profile and prepare concrete surfaces by engineer-approved methods in accordance with the most current ICRI 310.2R guidelines.
- C. Ensure that the concrete substrate is saturated surface-dry (SSD) before installation of Planitop 12 SR. Alternatively, the prepared concrete can be coated with Planibond 3C.
- D. Ensure that all reinforcing steel is prepared in accordance with the most current ICRI 310.1 guideline and coated with either Planibond 3C or Mapefer 1K.

3.3 MIXING

Before product use, take appropriate safety precautions. Refer to the Safety Data Sheet for details.

- A. Into a clean mixing container, pour the required amount of cool, clean potable water for desired application method. Refer to technical data sheet for mixing ratios.

3.4 INSTALLATION

Read all installation instructions thoroughly before installation.

- A. Apply with a trowel or a low-pressure spray pump, without formwork on vertical and overhead surfaces. Planitop 12 SR also can be applied with an appropriate low-pressure screw/rotor stator pump.
- B. If applying successive lifts of Planitop 12 SR, wait for the final set of the previous lift (after 4 hours at 73°F [23°C]). Leave the first lift rough and immediately score the surface (about 1/4" or 6 mm) with the edge of the trowel in a continual "X" or "H" pattern (a hand rake may be used) to enhance the bonds of additional lifts. The maximum application thickness per lift of Planitop 12 SR, without formwork, is 2" (5 cm) for vertical repairs. For overhead applications, apply in two lifts at 1" (2.5 cm) thick per lift.
- C. When placing Planitop 12 SR in vertical and overhead installations, use either adequate existing/new reinforcement or a pinning system to provide assurance of bond to the



structure. Review this issue with the project engineer before beginning the repair process.

3.5 CURING

- A. During curing, protect Planitop 12 SR from excessive heat and draft conditions.
- B. Mist-spray the surface with water during the first 24 hours of wet-curing. Alternatively, use damp burlap, a white polyethylene sheet, or a suitable ASTM C309 curing compound. Do not use a solvent-based curing compound.

3.6 PROTECTION

- A. Protect installed products until completion of project.
- B. Touch up, repair or replace damaged products before substantial completion.

END OF SECTION